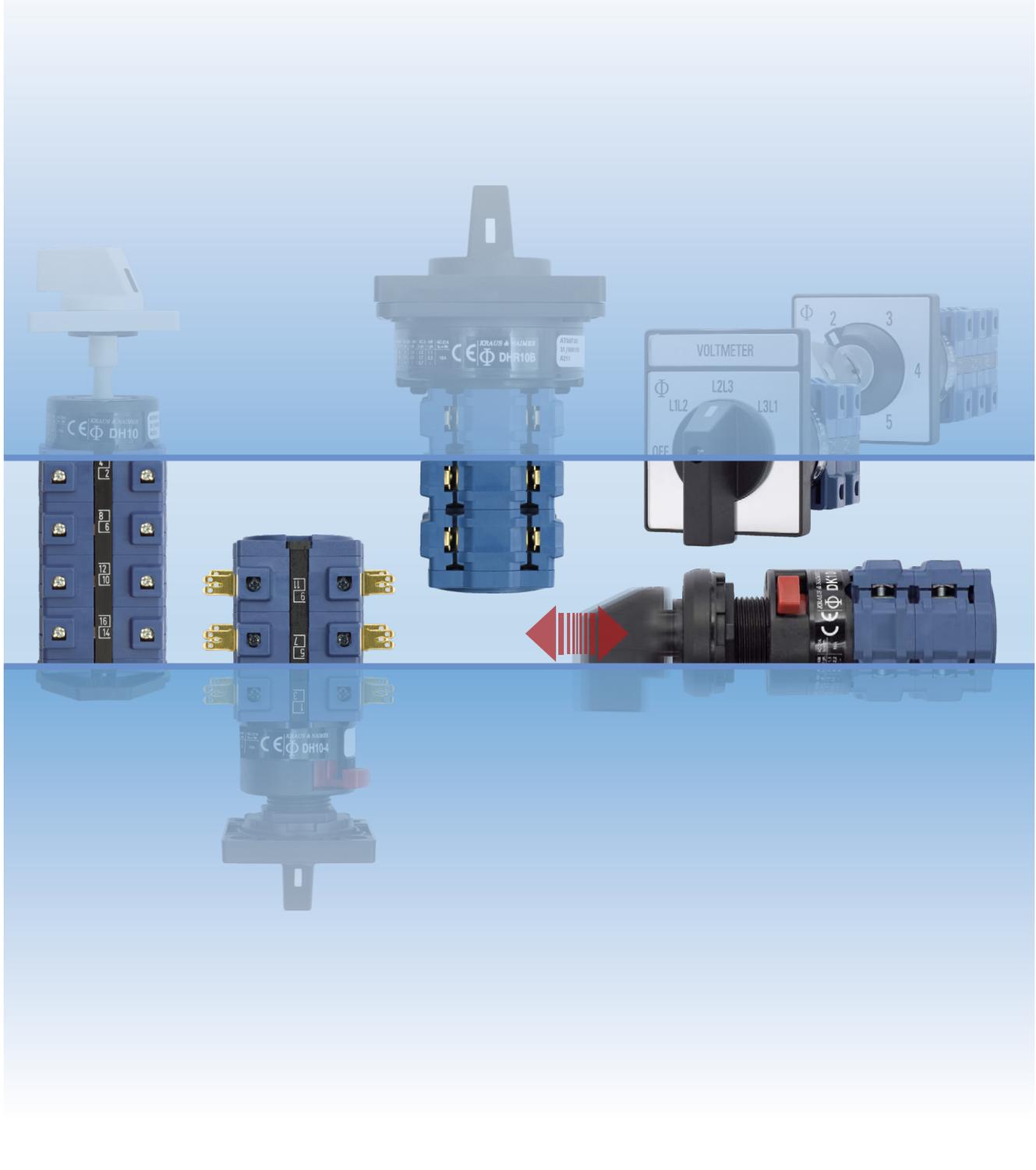


Control Switches for Special Applications

DH, DHR, DK and DKR type up to 16 A



Kraus & Naimer

The development of the Blue Line rotary switch and motor starter product ranges is based on more than hundred years experience by Kraus & Naimer in the design and manufacture of electrical switchgear. Kraus & Naimer pioneered the introduction of the cam operated rotary switch and continues to be recognized as the world leader in that product field.

BLUE LINE

Blue Line products are protected by numerous patents through-out the industrial world. They are built to national and international standards and designed to withstand adverse temperatures and climates.

Blue Line products are accepted and universally recognized for their quality and workmanship. They are supported by a worldwide sales and service organization.

The Kraus & Naimer Registered Trademark



WORLDWIDE SYMBOL
FOR QUALITY SWITCHGEAR

Disconnectors and Main Switches acc. to IEC 60947-3 see Catalog 500

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Construction Data

Cam switches of the DH, DHR, DK and DKR series are designed for universal applications and may ideally be used for control switches, instrumentation switches and circuit interrupters. Different contact designs, contact materials and terminals allow their use in electronic circuitry as well as in aggressive environments in accordance with IEC 60947-3, EN 60947-3 and VDE 0660 part 107.

Fully enclosed contact chambers provide optimum protection from dust and other contaminants.

The stage is the basis for all switches and can be supplied with a maximum of 2 contacts. The terminals are accessible from the side. All switches in this series are supplied with open terminals and are finger-proof according to EN 50274,

VDE 0660 part 514 and DGUV V3. Captive plus-minus terminal screws and integrated screwdriver guides facilitate wiring. Alternatively, the switches of the DH and DK series can be supplied with integrated quick connect terminals. Each quick connect terminal may accept either one 6.3 mm or two 2.8 mm quick connect lugs.

For connection with ring type terminals the DHR and DKR series of switches are available. These switches are supplied with large open terminals, which allow for connection without the need of removing the screws.

2 Contact Systems

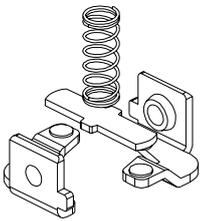


Fig. 1

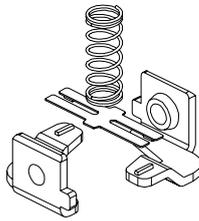
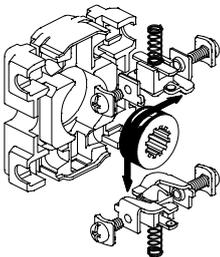


Fig. 2

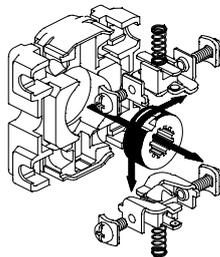
A rigid double-break bridge with silver alloy contacts (DH10, DHR10, DK10, DKR10, DH10B) provides high making and breaking capabilities for regular control applications. (Fig. 1)

Self-cleaning H-bridges with a cross-wire contact system are used for electronic and low voltage range applications. They are available with either silver contacts (DH12, DHR12, DK12, DKR12, DH12B, DHR12B) or gold-plated contacts (DH11, DHR11, DK11, DH11B, DHR11B). This contact system offers maximum contact security, low resistance and virtually chatter free switching. (Fig. 2)

2 Methods of Contact Operation



Turning

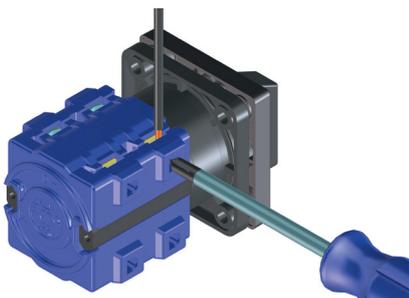


Turning and Pushing

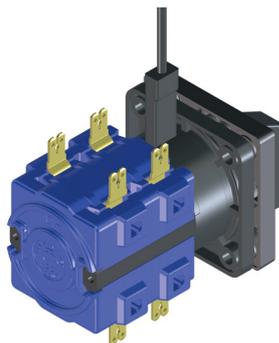
The contacts of the switches of the DH and DHR series can be manually operated by turning and the DK and DKR series by turning and/or pushing. This versatility of handle movement permits a countless variety of contact arrangements. Special pre-select programs enable the operator to rotate the handle to any one of up to 12 positions, while bypassing contact operation in all intermediate positions. Momentary contact operation for a pre-selected position occurs only when the handle is depressed. Releasing the handle returns switch operation to the normal plane.

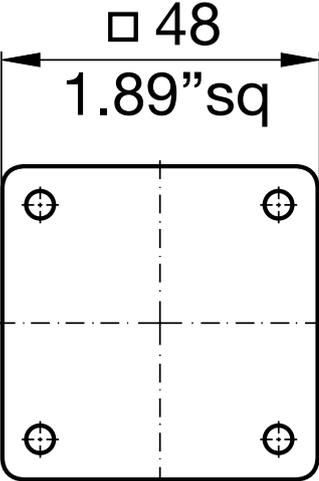
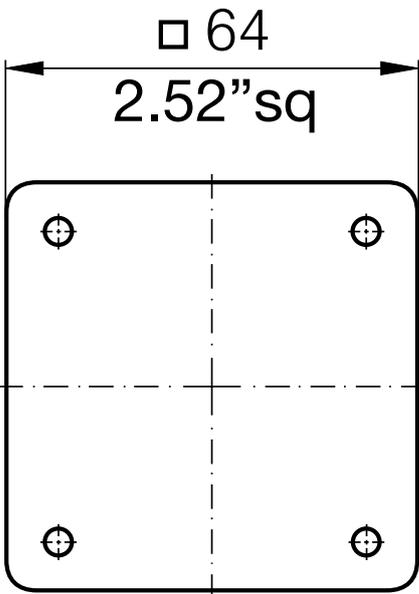
Type	Size	Possible Switching Angles	Max. No. of Stages
DH10-DHR12	S0	30°, 45°, 60°, 90°	12
DK10-DKR12	S0	30°, 60°, 90°	9
DH10B-DHR12B	S1	30°, 45°, 60°, 90°	12

DH and DK-series



DHR and DKR-series



Switch Size	Type	According to IEC/EN 60947-3 and VDE 0660 part 107				
		Insulation Voltage ¹ min.-max. U_i	Thermal Current I_U/I_{th}	Operational Current I_o 220 V-240 V AC-15		
		V	A	A		
S0 	DH10 DH11 DH12 DHR10 DHR11 DHR12	20-690 1 ² -600 6-600 20-690 1 ² -600 6-600	16 6 6 16 6 6	5 - - 5 - -		
			Operation by turning			
					5	
		DK10 DK11 DK12 DKR12	20-690 1 ² -600 6-600 6-600	16 6 6 6	- - - -	
			Operation by turning/pushing			
	S1 	DH10B DH11B DH12B DHR11B DHR12B	20-690 1 ² -600 6-600 1 ² -600 6-600	16 6 6 6 6	5 - - - -	
				Operation by turning		
						5
				For further technical details, refer to pages 40 and 41. To furnish with gold contacts and quick connects, refer to page 6.		

¹Valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3. Values for other supply systems on request. ²Values for lower voltages on request.

How to order

Disconnectors and Main Switches according to IEC 60947-3 see Catalog 500

Three types of data (shown below) are required for ordering Blue Line cam-operated switches. Code numbers for ordering are shown in this catalog.

1. Type of Switch

The type of switch required may be easily selected by referring to the table on page 5 which shows the thermal current, power rating and dimensions of each switch. For further technical details, refer to pages 40 and 41. Variations of contacts and terminals are shown below.

2. Switch Function

The code numbers for standard switches shown on pages 8-30 indicate the switch function, escutcheon plate, handle and any optional extras.

Additional coding to modify type and color of handle and escutcheon plate is explained below.

3. Type of Mounting

Types of mounting are shown on pages 31-35. Catalog **101** describes enclosures and optional extras.

Specify the mounting code to indicate required mounting.

DH10

A202-600

VE

Type of Switch

Extending the switch type coding the following combinations will define:

Amendment	Definition	For switch types
-1	with gold contacts ¹	DH10-1, DK10-1
-4	with integrated quick connects	DH10-4, DH11-4, DH12-4, DK10-4, DK12-4, DH11B-4

Handles, Escutcheon Plates and Optional Extras

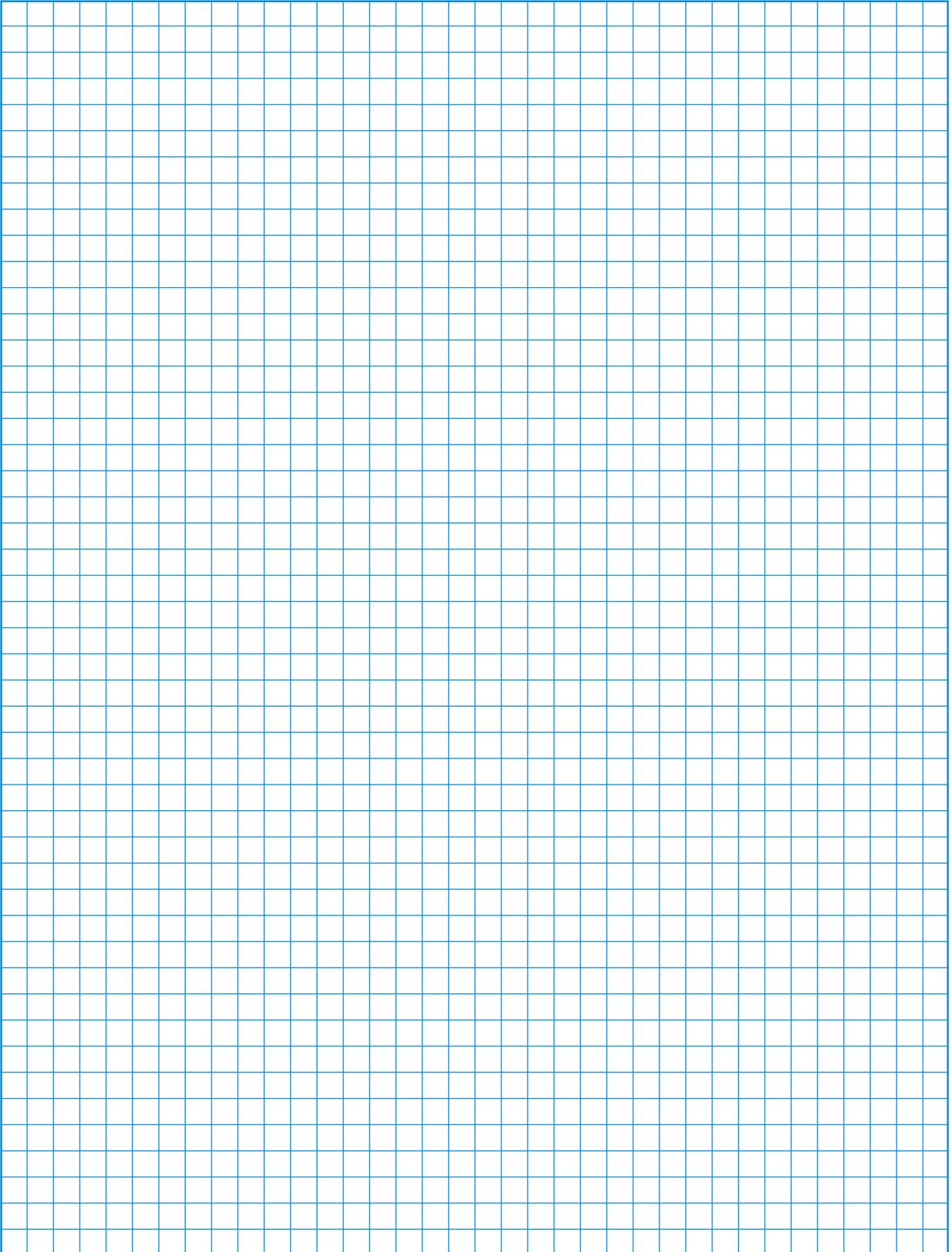
The handles for standard switches shown on pages 8-30 are suitable for mounting units with four hole panel mounting. Alternative types of handles available are illustrated on pages 31-35.

When a handle, escutcheon plate or optional extra is required but not covered by the dash number, the code number for the selected component should be entered separately. A comprehensive range of available standard escutcheon plates is illustrated on pages 36-38. Non-standard or special escutcheon plate engravings are available at extra cost. The large number of optional extras and enclosures is covered in Catalog **101**.

Switch Size

DH, DHR, DK and DKR switches are available in sizes S0 and S1. These size codes indicate the dimension of the mounting, the escutcheon plate and the handle, as well as the size of optional devices and enclosures. Page 5 lists these sizes and the various switch types they include.

Notes:



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Switch Function and Configuration

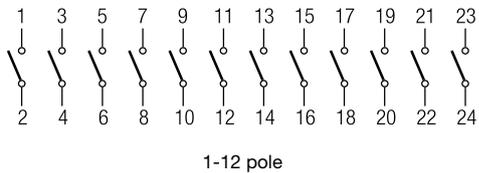
DH, DHR Switches

Turn to operate

Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
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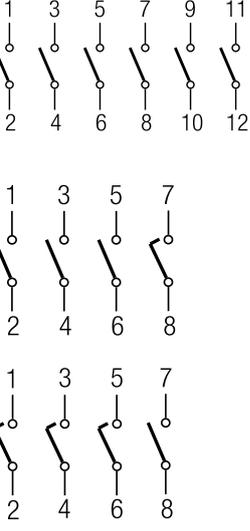
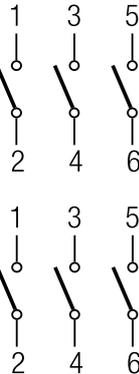
ON/OFF Switches with 60° Switching

[Dimensions p. 45](#)

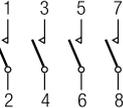
1 pole	 F070			A200	1	 <p>1-12 pole</p>
2 pole				A201	1	
3 pole				A202	2	
4 pole				A203	2	
5 pole				WAA341	3	
6 pole				A342	3	
7 pole				A343	4	
8 pole				A344	4	
9 pole				WAA345	5	
10 pole				A346	5	
11 pole				WAA347	6	
12 pole				A348	6	

ON/OFF Switches with 90° Switching

[< back to table of contents >](#)

1 pole contacts	 F056			A290	1	 <p>1-, 2-, 3-, 4-, 5- and 6 pole</p> <p>4 pole 1 pole preclose 60°</p> <p>4 pole 3 pole preclose 30°</p>
2 pole preclose 30°				A291	1	
3 pole				A292	2	
4 pole				A324	2	
4 pole 1 pole preclose 60°				A293	2	
4 pole 3 pole preclose 30°				WAA327	2	
5 pole contacts				WAA325	3	
6 pole preclose 30°			A326	3		
3 pole 360° rotation	 F062			WAA208	2	
3 pole for foot operation				WAA386	2	

ON/OFF Switches with Spring Return to „OFF“ 30° Switching

1 pole	 F153			A204	1	 <p>1-4 pole</p>
2 pole				A205	1	
3 pole				WAA206	2	
4 pole				WAA207	2	

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Double-throw Switches without „OFF“ 60° Switching

[Dimensions p. 45](#)

1 pole				A220	1	
2 pole				A221	2	
3 pole				A222	3	
4 pole				A223	4	
5 pole				A369	5	
6 pole				A370	6	
7 pole				A371	7	
8 pole				A372	8	
9 pole				WAA373	9	
10 pole				WAA374	10	
11 pole				WAA375	11	
12 pole				WAA376	12	

Double-throw Switches without „OFF“ with electrically isolated contacts

1 pole				A720	1	
2 pole				A721	2	
3 pole				A722	3	
4 pole				A723	4	
1 pole with spring return				A795	1	

Double-throw Switches with Spring Return to Center

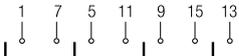
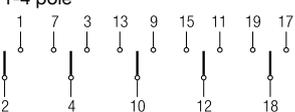
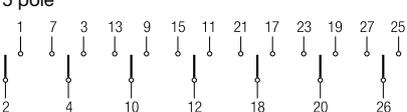
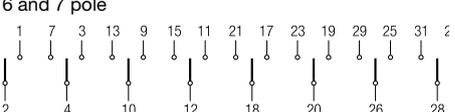
1 pole				A295	1	
2 pole				A296	2	
3 pole				WAA297	3	

[< back to table of contents >](#)

Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
		DH10- DH10B- DHR12 DHR12B			

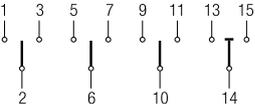
Double-throw Switches with Center „OFF“ 60° Switching

[Dimensions p. 45](#)

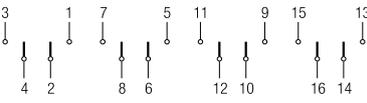
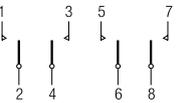
1 pole	 F071			A210	1	
2 pole				A211	2	
3 pole				A212	3	
4 pole				A213	4	
5 pole				A361	5	
6 pole				A362	6	
7 pole				WAA363	7	
8 pole				WAA364	8	
						 1-4 pole
						 5 pole
						 6 and 7 pole
						 8 pole

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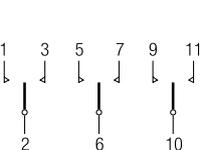
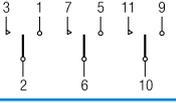
Double-throw Switches with Center „OFF“ 90° Switching

1 pole contacts	 F057			A218	1	
2 pole preclose 30°				A219	2	
3 pole				WAA299	3	
4 pole 1 pole preclose 60°				WAA294	4	

Double-throw Switches with Center „OFF“ and electrically isolated contacts

1 pole	 F071			A710	1	
2 pole				A711	2	
3 pole				A712	3	
4 pole				A713	4	
1 pole with spring return to center	 F025			A714	1	
2 pole to center				A715	2	

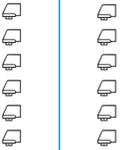
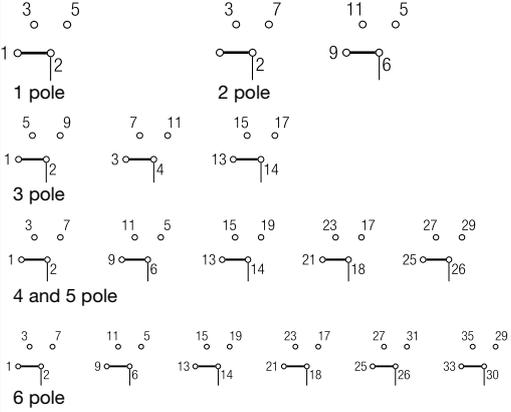
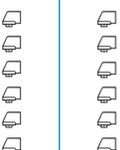
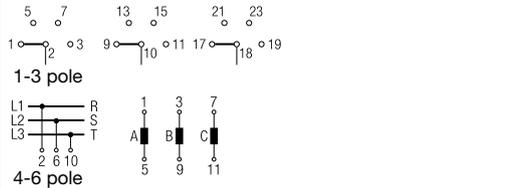
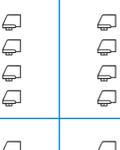
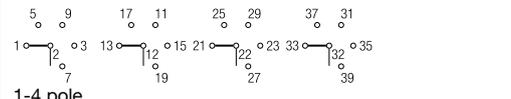
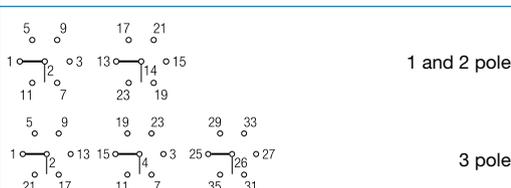
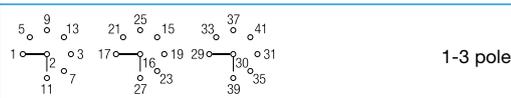
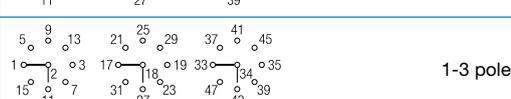
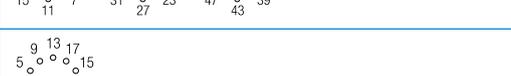
Double-throw Switches with Spring Return to Center

1 pole with spring return to center	 F025			A214	1	
2 pole to center				A215	2	
3 pole				A216	3	
1 pole with spring return from left to center	 F261			A320	1	
2 pole from left to center				A321	2	
3 pole				A322	3	

Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
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Multi-step Switches without „OFF“

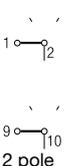
[Dimensions p. 45](#)

1 pole 3 Step 2 pole 3 pole 4 pole 5 pole 6 pole	 F076		A230 A250 A270 A476 WAA484 WAA489	2 3 5 6 8 9	
1 pole 4 Step 2 pole 3 pole 4 pole 5 pole 6 pole	 F077		A231 A251 A271 A477 WAA485 WAA490	2 4 6 8 10 12	
1 pole 5 Step 2 pole 3 pole 4 pole	 F078		A232 A252 WAA272 WAA478	3 5 8 10	
1 pole 6 Step 2 pole 3 pole	 F079		A233 WAA253 WAA273	3 6 9	
1 pole 7 Step 2 pole 3 pole	 F110		WAA234 WAA254 WAA274	4 7 11	
1 pole 8 Step 2 pole 3 pole	 F111		WAA235 WAA255 WAA275	4 8 12	
1 pole 9 Step	 F010		WAA236	5	
1 pole 10 Step	 F011		WAA237	5	
1 pole 11 Step	 F012		WAA238	6	
1 pole 12 Step	 F013		WAA239	6	

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Function	Escutch. Plate	Type/Handle		Code	Stages	Connection Diagram
		DH10- DHR12	DH10B- DHR12B			

Multi-step Switches without „OFF“ with electrically isolated contacts [Dimensions p. 45](#)

1 pole 3 Step	 F076			A730	2	 1 pole
2 pole				A750	3	 2 pole
1 pole 4 Step	 F077			A731	2	 1 pole
2 pole				A751	4	 2 pole

Multi-step Switches with „OFF“

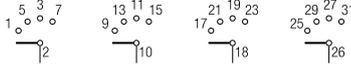
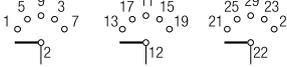
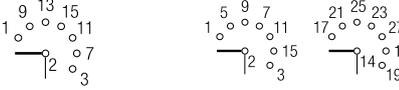
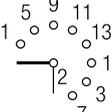
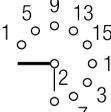
1 pole 2 Step	 F075			A240 A260 A280 WAA480 WAA486 WAA491	1	 1-6 pole
2 pole					2	
3 pole					3	
4 pole					4	
5 pole					5	
6 pole					6	
1 pole 3 Step	 F109			A241 A261 A281 A481 WAA487	2	 1 and 2 pole
2 pole					3	
3 pole					5	
4 pole					6	
5 pole					8	
					 3 pole	
					 4 pole	
					 5 pole	

[< back to table of contents >](#)

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Multi-step Switches with „OFF“

[Dimensions p. 45](#)

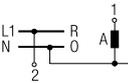
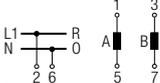
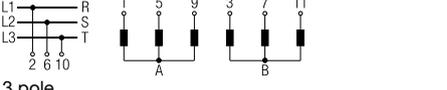
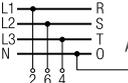
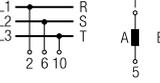
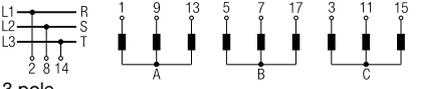
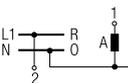
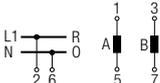
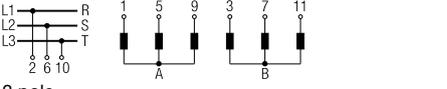
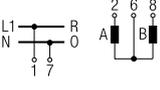
1 pole 4 Step 2 pole 3 pole 4 pole		   	   	A242 WAA262 WAA282 WAA482	2 4 6 8	 1-4 pole
1 pole 5 Step 2 pole 3 pole		  	  	A243 WAA263 WAA283	3 5 8	 1-3 pole
1 pole 6 Step 2 pole 3 pole		  	  	A244 WAA264 WAA284	3 6 9	 1-3 pole
1 pole 7 Step 2 pole		 	 	WAA245 WAA265	4 7	 1 pole 2 pole
1 pole 8 Step		 		WAA246	4	
1 pole 9 Step		 		WAA247	5	
1 pole 10 Step		 		WAA248	5	
1 pole 11 Step		 		WAA249	6	

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Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
		DH10- DH10B- DHR12 DHR12B			

General Application Switches

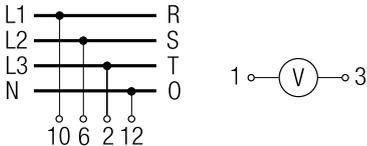
[Dimensions p. 45](#)

<p>1 pole 2 Gang 2 pole Switching sequence: 3 pole 0, A, A+B</p>  <p>F075</p>					<p>A310 A312 WAA314</p>	<p>1 2 3</p>  <p>1 pole</p>  <p>2 pole</p>  <p>3 pole</p>
<p>1 pole 3 Gang 2 pole Switching sequence: 3 pole 0, A, A+B, A+B+C</p>  <p>F001</p>					<p>A311 WAA313 WAA315</p>	<p>2 3 5</p>  <p>1 pole</p>  <p>2 pole</p>  <p>3 pole</p>
<p>1 pole 2 Gang 2 pole Series switching 3 pole Switching sequence: 0, A, B, A+B</p>  <p>F001</p>					<p>WAA330 WAA331 WAA332</p>	<p>1 2 3</p>  <p>1 pole</p>  <p>2 pole</p>  <p>3 pole</p>
<p>2 pole 2 Gang Series-parallel Switching</p>  <p>F001</p> <p>Switching sequence: 0, A+B series, A, A+B parallel</p>					<p>WAA339</p>	<p>2</p> 

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Voltmeter Switches without „OFF“

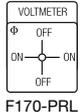
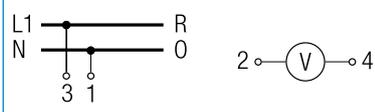
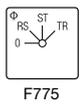
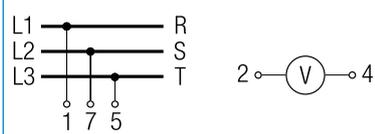
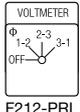
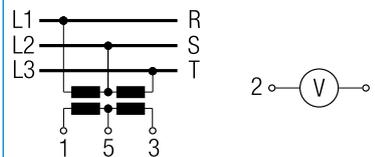
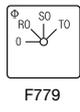
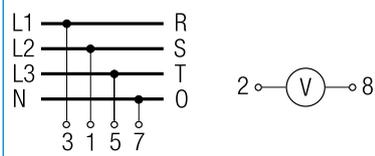
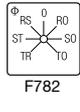
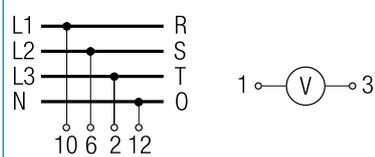
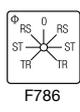
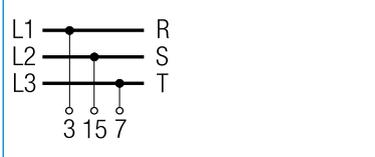
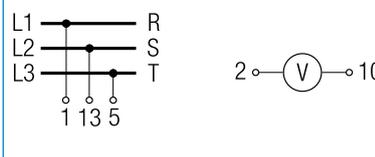
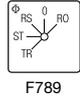
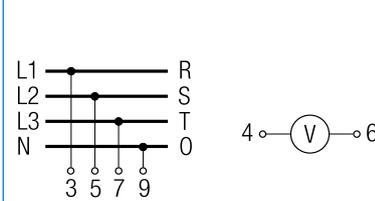
[Dimensions p. 45](#)

3 phase 3 wire				A023	2	
3 phase 3 wire 3 phase to phase and phase to neutral				A025	3	

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Voltmeter Switches with „OFF“

[Dimensions p. 45](#)

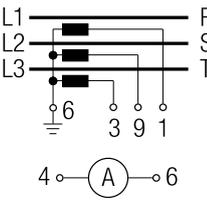
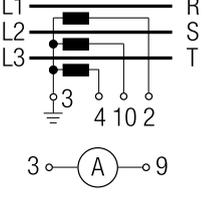
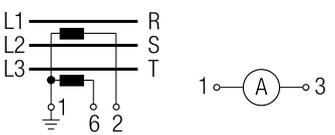
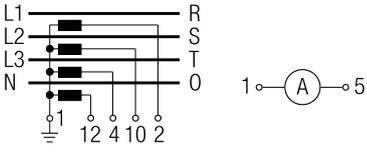
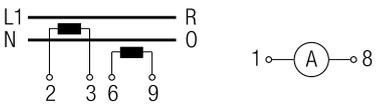
2 pole 360° rotation	 F170-PRL			WAA002	2	
3 phase 3 wire	 F775			A004		
	 F212-PRL			WAA011		
3 phase to neutral	 F779			WAA005		
3 phase to phase and 3 phase to neutral	 F782			A007	3	
2 separate 3 phase with center „OFF“	 F786			WAA008	4	
						
3 phase and 1 phase to neutral	 F789			WAA010	3	

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Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
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Ammeter Switches

Dimensions p. 45

Single pole with one current transformer				WAA046	1	
Single pole with 3 current transformers without „OFF“				WAA017	3	
Single pole with 3 current transformers with „OFF“ 360° rotation				A048	3	
Single pole with 2 current transformers (3 readings)				WAA021	2	
Single pole with 4 current transformers				WAA036	4	
2 pole 2 current transformers				WAA037	3	

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Switch Function and Configuration

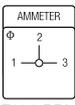
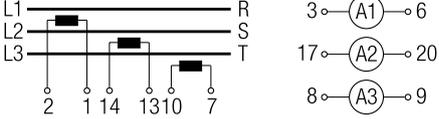
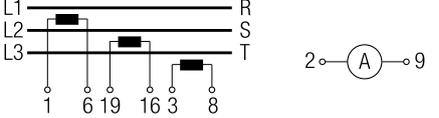
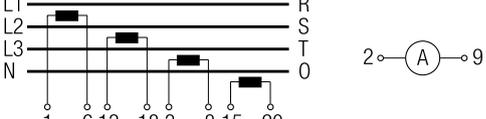
DH, DHR Switches

Turn to operate

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Ammeter Switches

[Dimensions p. 45](#)

2 pole 3 current transformers	 <p>F181-PRL</p>			WAA019	5	
	 <p>F059</p>			A038	5	
2 pole 4 current transformer	 <p>F060</p>			WAA039	6	

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Switch Function and Configuration

DH, DHR Switches

Turn to operate

Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Volt-ammeter Switches

[Dimensions p. 45](#)

3 phase - phase to phase 3 current				WAA027	6	
				WAA028	7	
3 phase voltage 3 phase current 4 wire				WAA033	5	
				WAA035	5	

Control Switches

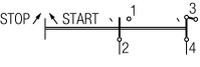
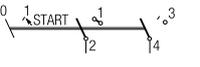
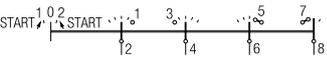
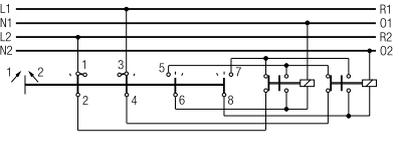
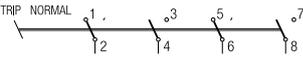
Stop switch				WAA174	1	
Start switch				A175	1	
Stop start switch single pole				A176	1	
Stop start switch 2 pole				WAA183	2	
Stop start switch with spring return from start to run				A178	1	
Stop start switch with spring return to run for 2 units				WAA177	2	
Stop start switch with spring return to run with contactor interlock contactors for 2 units				WAA182	2	
Motor voltage control switch				WAA150	2	

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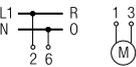
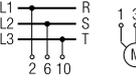
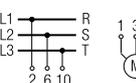
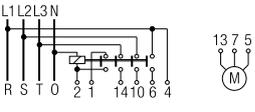
Function	Escutch. Plate	Type/Handle	Code	Stages	Connection Diagram
		DH10- DH10B- DHR12 DHR12B			

Control Switches with electrically isolated contacts

[Dimensions p. 45](#)

Stop start switch single pole	 F024			A789	1	
Stop start switch with spring return to 1	 F119			A791	1	
Stop start switch with spring return to run for 2 units	 F121			WAA790	2	
Contactor control with spring return to „OFF“	 F025			WAA179	2	
Circuit breaker control	 F143-PRL			WAA537	2	

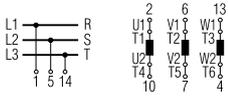
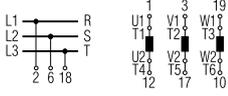
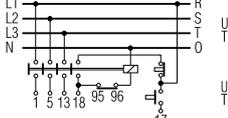
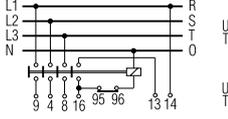
Motor Reversing Switches

	 F071			A400	2	
	 F071			A401	3	
	 F025			A228	3	
	 F121			WAA402	4	

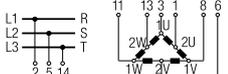
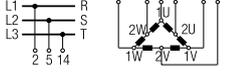
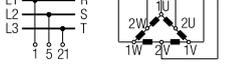
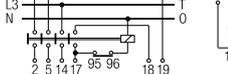
Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Star-delta Switches

[Dimensions p. 45](#)

Normalausführung				A410	4	
2 Drehrichtungen				WAA413	5	
Mit Verriegelungskontakt geschlossen in 0				WAA416	5	
Für Schützsteuerung				A419	4	

Motor Control Switches

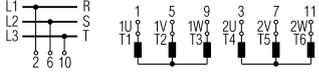
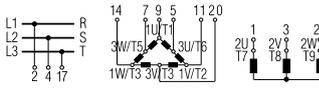
2 speed single winding				A440	4	
2 speed single winding without „OFF“				A466	4	
2 speed single winding with center „OFF“				A441	4	
2 speed single winding reversing				A442	6	
2 speed single winding for use with contactors				WAA444	5	

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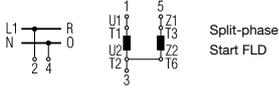
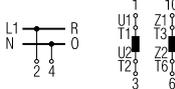
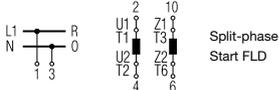
Function	Escutch. Plate	Type/Handle DH10- DH10B- DHR12 DHR12B	Code	Stages	Connection Diagram
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Motor Control Switches

Dimensions p. 45

2 speed 2 winding 0-A-B Υ or Δ	 F073			WAA451	3	
3 speed 2 winding 0-A Δ -B Υ -A Υ	 F109			WAA457	6	

Start and Run Switches

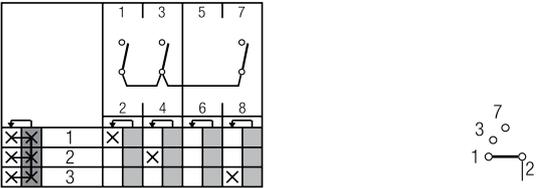
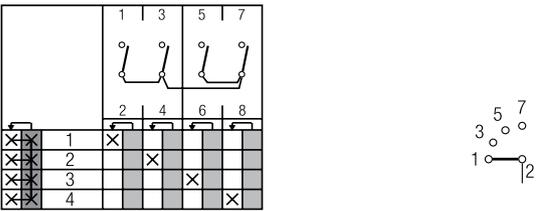
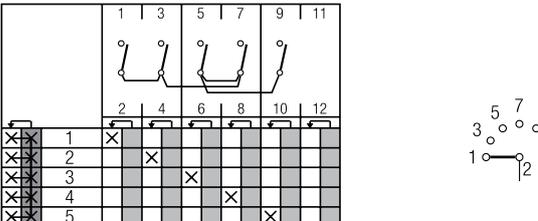
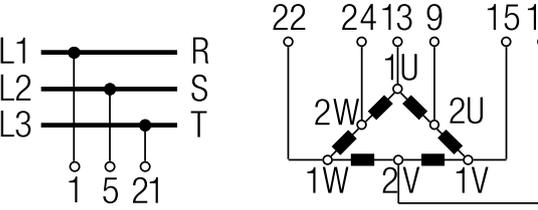
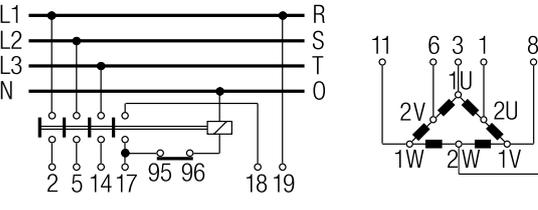
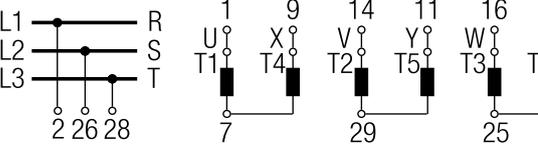
Split-phase start	 F119			A425	2	
Split-phase start reversing	 F120			WAA426	3	
Split-phase reversing, auto cut-out of start field winding	 F104			WAA622	3	

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Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Multi-step Switches without „OFF“

[Dimensions p. 45](#)

1 pole 3 Step	 F161		WAA830	2	
1 pole 4 Step	 F052		WAA831	2	
1 pole 5 Step	 F055		WAA832	3	
1 pole 6 Step	 F138		WAA833	3	
1 pole 7 Step	 F135		WAA834	4	
1 pole 8 Step	 F136		WAA835	4	

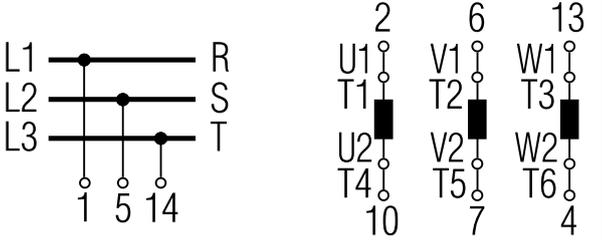
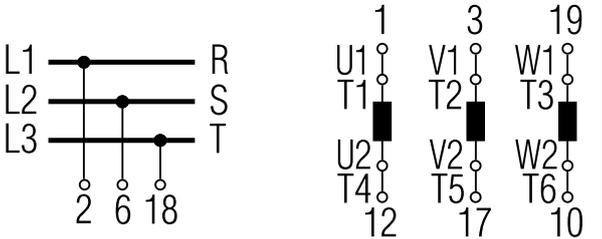
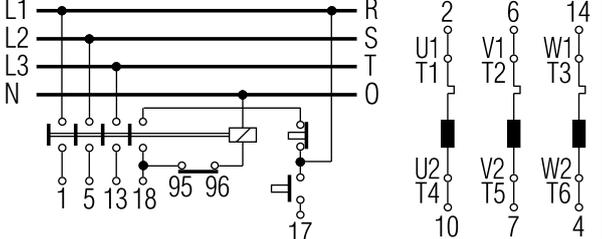
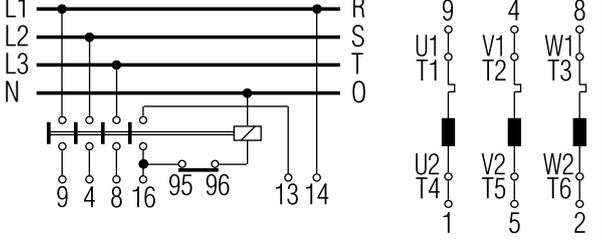
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Rotation only in pushed position. Contacts are closed only in normal position. Therefore, one or more positions of a multi-step switch can be passed without contact operation.

Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Multi-step Switches without „OFF“

[Dimensions p. 45](#)

1 pole 9 Step	 F010		WAA836	5	 <p>Diagram showing three main lines L1, L2, L3 connected to terminals R, S, T. Below are three sets of terminals: (1, 5, 14), (2, 10, 6, 7), and (4, 13, 19, 10, 17, 14).</p>
1 pole 10 Step	 F011		WAA837	5	 <p>Diagram showing three main lines L1, L2, L3 connected to terminals R, S, T. Below are three sets of terminals: (2, 6, 18), (1, 12, 3, 17, 19, 10, 17, 10).</p>
1 pole 11 Step	 F012		WAA838	6	 <p>Diagram showing three main lines L1, L2, L3 and a neutral line N. Below are three sets of terminals: (1, 5, 13, 18, 95, 96, 17), (2, 10, 6, 7), and (4, 14, 19, 10, 17, 14).</p>
1 pole 12 Step	 F013		WAA839	6	 <p>Diagram showing three main lines L1, L2, L3 and a neutral line N. Below are three sets of terminals: (9, 4, 8, 16, 95, 96, 13, 14), (9, 1, 4, 5, 8, 2), and (1, 5, 2, 14, 19, 10, 17, 14).</p>

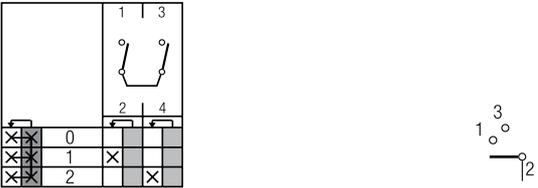
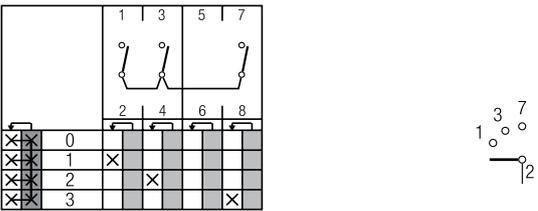
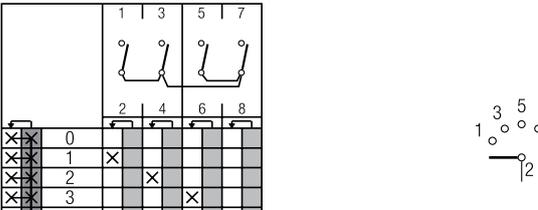
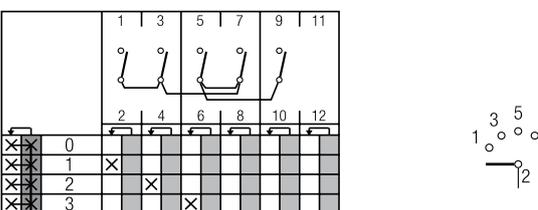
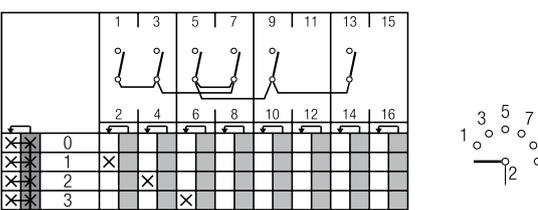
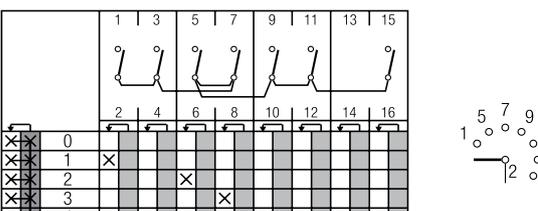
[< back to table of contents >](#)

Rotation only in pushed position. Contacts are closed only in normal position. Therefore, one or more positions of a multi-step switch can be passed without contact operation.

Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Multi-step Switches with „OFF“

[Dimensions p. 45](#)

1 pole 2 Step	 F053		WAA840	1	
1 pole 3 Step	 F001		WAA841	2	
1 pole 4 Step	 F002		WAA842	2	
1 pole 5 Step	 F003		WAA843	3	
1 pole 6 Step	 F004		WAA844	4	
1 pole 7 Step	 F005		WAA845	4	

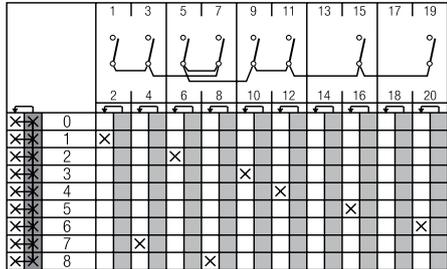
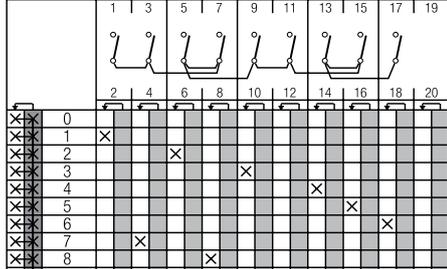
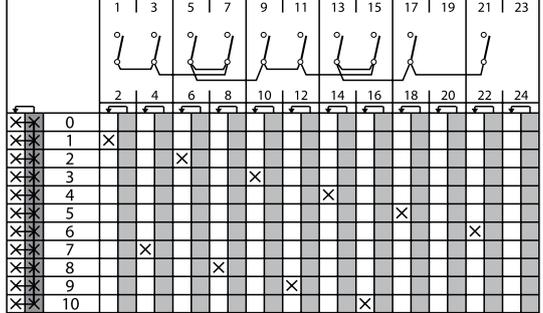
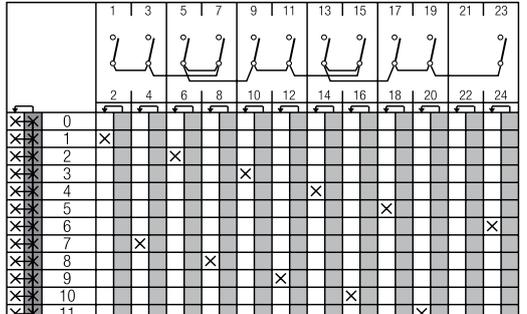
[< back to table of contents >](#)

Rotation only in pushed position. Contacts are closed only in normal position. Therefore, one or more positions of a multi-step switch can be passed without contact operation.

Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Multi-step Switches with „OFF“

[Dimensions p. 45](#)

1 pole 8 Step	 F006		WAA846	4	
1 pole 9 Step	 F009		WAA847	5	
1 pole 10 Step	 F008		WAA848	5	
1 pole 11 Step	 F009		WAA849	6	

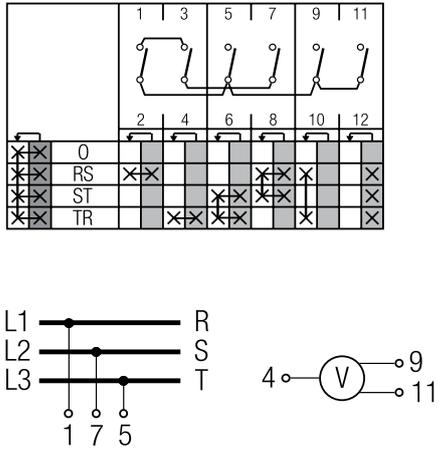
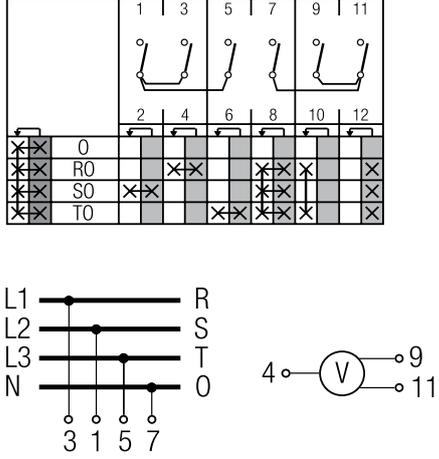
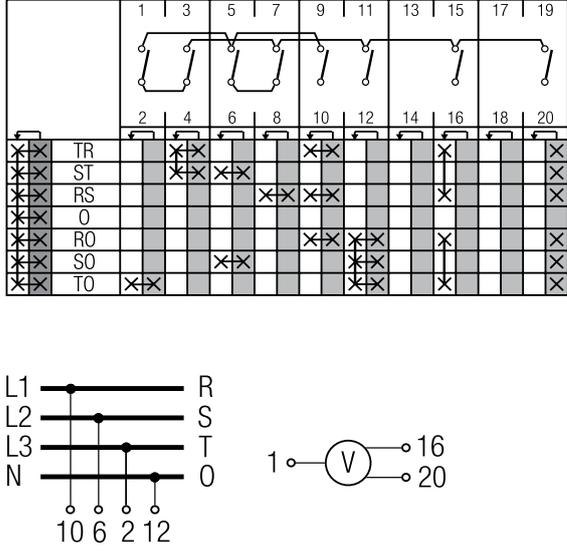
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Rotation only in pushed position. Contacts are closed only in normal position. Therefore, one or more positions of a multi-step switch can be passed without contact operation.

Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Voltmeter Switches with „OFF“

Dimensions p. 45

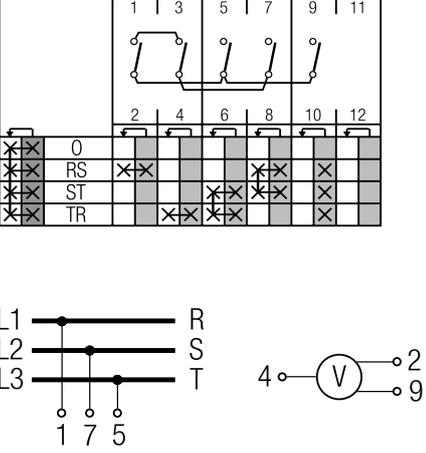
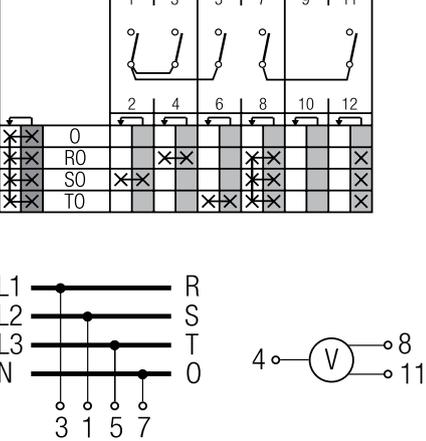
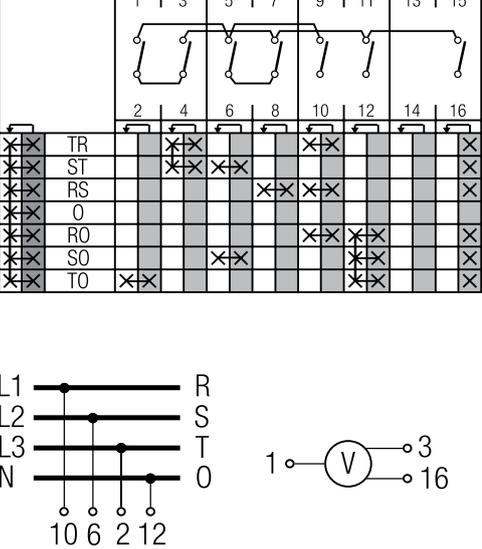
<p>For 2 measuring ranges by additional NO and NC contacts operated by pushing handle</p>	 <p>F019</p>		<p>WAA804</p>		
<p>For 2 measuring ranges by additional NO and NC contacts operated by pushing handle</p>	 <p>F018</p>		<p>WAA805</p>		
<p>For 2 measuring ranges by additional NO and NC contacts operated by pushing handle</p>	 <p>F020</p>		<p>WAA807</p>		

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Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Voltmeter Switches with „OFF“

[Dimensions p. 45](#)

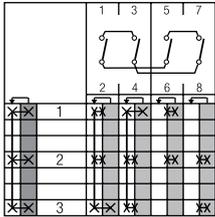
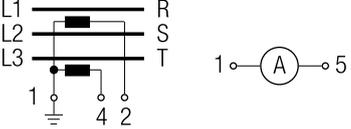
<p>(as A804) for 2 measuring ranges by additional NO contact operated by pushing handle</p>	 <p>F019</p>		<p>WAA814</p>	<p>3</p>	
<p>(as A805) for 2 measuring ranges by additional NO contact operated by pushing handle</p>	 <p>F018</p>		<p>WAA815</p>	<p>3</p>	
<p>(as A807) for 2 measuring ranges by additional NO contact operated by pushing handle</p>	 <p>F020</p>		<p>WAA817</p>	<p>4</p>	

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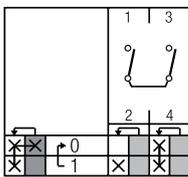
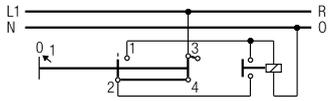
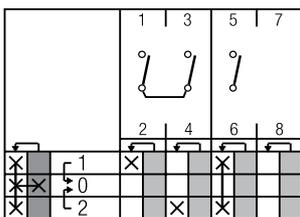
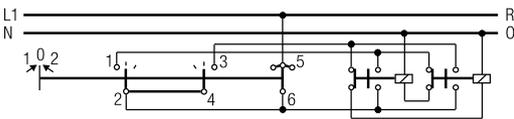
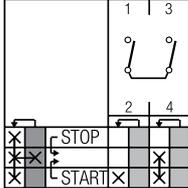
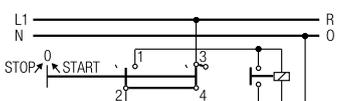
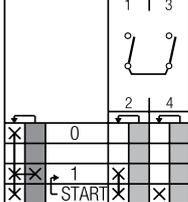
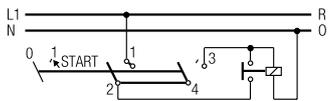
Function	Escutch. Plate	Handle	Code	Stages	Connection Diagram
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Ammeter Switches

Dimensions p. 45

Single pole with 2 current transformers (3 readings)			WAA021	2	 
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Steuerschalter

Control switch for contactor control, closing by rotating, tripping by pushing in „OFF“ position			WAA874	1	 
Control switch for 2 NO and 1 NC contacts			WAA875	2	 
Control switch 1pole with additional emergency cut-out by pushing in „OFF“ position			WAA876	1	 
Control switch stop start switch with spring return from start to position 1, with additional emergency cut-out by pushing in position 1			WAA878	1	 

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Two or Four Hole Panel Mounting	Terminals rotated 90°	Code		DH..B DHR..B	DK.. DKR..
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 <p>Panel mounting</p> <p>Four hole panel mounting, Protection IP 40</p> <p>Four hole panel mounting, Protection IP 66/67/69k</p> <p>Two hole panel mounting, Protection IP 66/67/69k</p>	<p>●</p> <p>●</p> <p>●</p>	<p>E E-V</p> <p>EF EF-V</p> <p>E22 E22-V</p>	<p>●</p> <p>●</p> <p>●</p>	<p>●</p> <p>●</p> <p>●</p>	<p>●</p>
 <p>Panel mounting using larger escutcheon plate and handle and with heavy duty latching</p> <p>Four hole panel mounting, Protection IP 40</p> <p>Four hole panel mounting, Protection IP 66/67/69k</p>		<p>EG</p> <p>EGF</p>	<p>●</p> <p>●</p>		
 <p>Panel and base mounting</p> <p>Four hole mounting, Protection IP 40</p> <p>Four hole mounting, Protection IP 66/67/69k</p>		<p>ER</p> <p>ERF</p>	<p>●</p> <p>●</p>	<p>●</p> <p>●</p>	

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Four Hole Panel Mounting	Code	DH.. DHR..	DH..B DHR..B
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 <p>Panel mounting with heavy duty latching and metal shaft</p> <p>Four hole panel mounting, Protection IP 40 Mounting plate, escutcheon plate and handle of size 0</p>	KN2	●	
 <p>Four hole panel mounting, Protection IP 40 Mounting plate, escutcheon plate and handle of size 1</p>	KN1	●	●
 <p>Four hole panel mounting, Protection IP 40 Mounting plate, escutcheon plate and handle of size 1 and 6 mm square metal shaft</p>	KD1	●	●
 <p>Panel mounting with protective cover</p> <p>Four hole panel mounting Protection front IP 40 rear IP 30</p>	EC	●	●
<p>Four hole panel mounting with additional shaft seal Protection front IP 40 rear IP 30</p>	ED	●	●

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Single Hole Mounting	Terminals rotated 90°	Code	DH.. DHR..	DK.. DKR..
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 <p>With locking nut and shaft seal</p> <p>Without escutcheon plate, Protection IP 66/67/69k</p>	<ul style="list-style-type: none"> ● ● 	<p>FT1 FT1-V</p> <p>FT3 FT3-V</p>	<p>mm</p> <p>22 22</p> <p>22/30 22/30</p>	<p>mm</p> <p>22 22</p> <p>22/30 22/30</p>
 <p>With square escutcheon plate, Protection IP 66/67/69k</p>	<ul style="list-style-type: none"> ● ● 	<p>FT2 FT2-V</p> <p>FT4 FT4-V</p>	<p>22 22</p> <p>22/30 22/30</p>	<p>22 22</p> <p>22/30 22/30</p>
 <p>With size S1 square escutcheon plate and heavy duty latching, Protection IP 66/67/69k</p>	<ul style="list-style-type: none"> ● 	<p>FH3 FH3-V</p>	<p>22 22</p>	<p>22 22</p>
 <p>With rectangular escutcheon plate, Protection IP 66/67/69k</p>	<ul style="list-style-type: none"> ● 	<p>FT6 FT6-V</p>	<p>22 22</p>	<p>22 22</p>
 <p>With size S1 rectangular escutcheon plate and heavy duty latching, Protection IP 66/67/69k</p>	<ul style="list-style-type: none"> ● 	<p>FH4 FH4-V</p>	<p>22 22</p>	<p>22 22</p>
 <p>Mounting key for locking nut</p>		<p>S00 T170 09</p>		

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Base Mounting	Terminals rotated 90°	Code	DH.. DHR..	DH..B DHR..B
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	<p>Base mounting</p> <p>Base mounting - four hole, Protection IP 40</p> <p>For four hole base mounting and with integrated simplified door clutch, Protection IP 65</p> <p>For two hole base mounting, Protection IP 40</p>	<p>●</p> <p>●</p> <p>●</p>	<p>VE VE-V</p> <p>VF VF-V</p> <p>VE22 VE22V</p>	<p>● ●</p> <p>● ●</p> <p>● ●</p>	<p>● ●</p> <p>● ●</p> <p>● ●</p>
	<p>For two hole base mounting and with integrated simplified door clutch, Protection IP 65</p>	<p>●</p>	<p>VF22 VF22V</p>	<p>● ●</p>	<p>● ●</p>
	<p>Snap-on base mounting for track EN 60715 ¹Protection IP 40 ²Protection IP 60/69k</p>		<p>VE1</p>	<p>●¹</p>	<p>●²</p>
	<p>Snap-on base mounting for track EN 60715 with rectangular escutcheon plate for 45 mm standard knock-out, Protection IP 40</p>		<p>VE2</p>	<p>●</p>	
	<p>Snap-on base mounting for track EN 60715. Both the escutcheon plate for 45 mm standard knock-out and the handle are adjustable in height. Protection IP 40</p>		<p>VE21</p>	<p>●</p>	

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<p>Mounting Plates for Plaster Depth Boxes acc. to DIN 49073 and ÖNORM E8608</p>	<p>Code</p>	<p>DH.. DHR..</p>
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	<p>Plaster depth trim, Protection IP40</p>	<p>UE1</p>	<p>●</p>
	<p>With light, Protection IP40</p> <p>With facility for light addition, Protection IP40</p>	<p>UE2</p> <p>UE3</p>	<p>●</p> <p>●</p>

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Escutcheon Plates



Square and rectangular escutcheon plates are available for each size of switch. The escutcheon plate consists of a frame and a faceplate having the switch positions which is then embossed with hot-foil backing. The escutcheon plate frame is an essential part of the switch and serves as a bearing surface for the handle. If the switch is to be mounted without an escutcheon plate we would recommend for size S1 the handle bearing plate T100-04.

Standard Letterings Available

(Over 500 standard letterings, special letterings upon request.)

30° switching

45° switching

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Face plates

60° switching

F087	F089	F133	F197	F198	F232	F243	F247	F263	F268	F310	F311	F323	F328	F352	F367
F379	F380	F470	F754	F072	F163	F164	F192	F193	F196	F230	F231	F234	F244	F257	F262
F291	F313	F382	F441	F721	F722	F750	F757	F758	F075	F076	F098	F220	F223	F356	F357
F377	F723	F071	F073	F080	F081	F085	F086	F090	F091	F092	F093	F094	F235	F237	F239
F240	F241	F249	F260	F269	F274	F281	F290	F292	F312	F314	F315	F316	F324	F331	F344
F359	F364	F370	F371	F373	F381	F385	F442	F444	F469	F732	F735	F759	F077	F100	F101
F342	F343	F361	F362	F363	F365	F366	F078	F191	F325	F326	F720	F074	F082	F096	F097
F256	F079	F083	F084	F095	F099	F185	F190	F199	F233	F236	F238	F242	F283	F725	F730
F737															

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90° switching

F056	F063	F068	F134	F201	F251	F346	F456	F058	F065	F069	F177	F178	F182	F208	F253	F254
F340	F360	F378	F458	F443	F700	F743	F057	F061	F064	F067	F171	F181	F205	F207	F320	F349
F437	F445	F715	F719	F059	F060	F062	F066	F170	F172	F173	F174	F175	F176	F179	F180	F186
F202	F206	F250	F265	F266	F286	F318	F327	F338	F339	F425	F716	F717	F718	F726	F733	F751
F755	F756															

Miscellaneous

F119	F130	F122	F126	F125	F129	F225	F248	F261	F341	F345	F287	F123	F127	F145	F146	F148	F706						
F707	F245	F120	F124	F128	F131	F121	F132	F749										F990	F991	F801	F802	F803	F804
F805	F806	F807	F808	F809	F810	F811	F812	F813	F814	F815	F816	F817	F818	F819	F820	F821	F822						
F823	F824	F825	F826	F827	F828	F829	F830	F831	F832	F833	F834	F835	F837	F838	F839	F840	F841						

¹INTERRUPTEUR PRINCIPAL, OUVERTURE EN POSITION 0 ²INTERRUPTORE GENERALE, APRIRE SOLO CON MANIGLIA SU 0
³INTERRUPTOR PRINCIPAL, ABRIR ARMARIO SOLO EN POS. "0"

Handles

Type	Color	Code	Size	
			S0	S1

Type	Color	Code	Size	
			S0	S1

<p>R-Handle</p> 	black red	G001 G002	● ● ● ●	● ● ● ●
<p>F-Handle</p> 	black red	G221 G222	● ● ● ●	● ● ● ●
 <p>S1</p>	black red	G301 G302	● ● ● ●	● ● ● ●
<p>P-Handle</p>  <p>S0 S1</p>	black red	G211 G212	● ● ● ●	● ● ● ●
<p>O-Handle</p> 	black red	G321 G322	— —	● ● ● ●

<p>I-Handle</p> 	black red	G251 G252	● ● ● ●	● ● ● ●
<p>B-Handle</p> 	black red	G521 G522	● ● ● ●	● ● ● ●
<p>L-Handle</p> 	black red	G501 G502	— —	● ● ● ●
<p>K-Handle</p> 	black red	G411 G412	— —	● ● ● ●

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Country	Authority	Mark or Standard	DH10 DK10 DH10B	DHR10	DH11 DK11 DH11B	DHR11 DHR11B	DH12 DK12 DH12B	DHR12 DKR12 DHR12B
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USA/Canada	Underwriters Laboratories			●		●		●
			●		●		●	
International Electrical Commission (IEC) Recommendation		IEC 60947 ²	+	+	+	+	+	+
Russia Belarus Kazakhstan	Eurasian Conformity		●	+	●	+	●	+
<p>● Switch approved + Switch conforms to requirements</p> <p>¹Industrial switchgear is not required to bear a symbol but must conform to requirements. By referring to the specific specification on the product the manufacturer implies that these requirements have been met. ²IEC does not operate an approval scheme.</p>								

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Selection Data	DH10	DK10	DHR10
	DH10B		

Rated Insulation Voltage U_e	IEC 60947-3 ¹ , EN 60947-3 ¹ VDE 0660 part 107 ¹ North America Min. operational voltage	V V V	690 600 20	690 600 20	690 600 20	
Rated Impulse Withstand Voltage U_{imp}		kV	6 ¹	4 ²	6 ¹	
Rated Thermal Current I_U/I_{th}	IEC 60947-3, EN 60947-3 VDE 0660 part 107 North America	A A	16 15	16 15	16 15	
Rated Operational Current I_e						
AC-21A	Switching of resistive loads, including moderate overloads	IEC 60947-3, EN 60947-3 VDE 0660 part 107	A	16	16	16
AC-15	Switching of control devices, contactors, valves etc.	IEC 60947-5-1, EN 60947-5-1 VDE 0660 part 200	110 V-240 V 380 V-440 V	A A	5 3	5 3
Pilot Duty	North America	Heavy	VAC	600	600	600
Ampere Rating	Resistive or low inductive loads	North America	A	15	15	15
Short Circuit Protection						
Max. fuse size	(gG-characteristic)	A	16	16	16	
Rated short-time withstand current	(1s-current)	A	120	120	120	
Rated Utilization Category	IEC 60947-3, EN 60947-3 VDE 0660 part 107					
AC-3	Direct-on-line starting, star-delta starting	3 phase 3 pole	220 V-240 V 380 V-440 V 500 V 660 V-690 V	kW	2,2 3,7 3,7 3,7	2,2 3,7 3,7 3,7
		1 phase 2 pole	110 V-120 V 220 V-240 V 380 V-440 V	kW	0,37 1,1 2,2	0,37 1,1 2,2
AC-23A	Frequent switching of motors or other high inductive loads	3 phase 3 pole	220 V-240 V 380 V-440 V 500 V 660 V-690 V	kW	3 5,5 5,5 4	3 5,5 5,5 4
		1 phase 2 pole	110 V-120 V 220 V-240 V 380 V-440 V	kW	0,55 1,5 2,5	0,55 1,5 2,5
Ratings	North America					
	Standard motor load	3 phase	110 V-120 V	HP	0,75	0,75
	DOL-Rating (similar AC-3)	3 pole	220 V-240 V 440 V-600 V	HP	1,5 3	1,5 3
		1 phase 2 pole	110 V-120 V 220 V-277 V 440 V-600 V	HP	0,25 0,5 1	0,25 0,5 1
Max. Permissible Wire Gage - Use copper wire only						
	Single-core or stranded wire		mm ² AWG		2x2,5 2x12	2x2,5 2x12
	Flexible wire (sleeving in accordance with DIN 46228) Flexible AWG wires (without sleeve)		mm ² AWG		2x2,5(1,5) 2x14	2x2,5(1,5) 2x14
	Connection with insulated ring and fork type terminals					
	Internal diameter		mm		-	≥3,2
	External diameter		mm		-	≤7,4
	Connection with quick connect terminations		mm		6,3	6,3
Min. Ambient Temperature of Stages						
Max. Ambient Temperature of Stages ^{3,4}		open at 100 % I_U/I_{th} enclosed at 100 % I_{the}				
						-25 °C (valid only without optional extra) 55 °C during 24 hours with peaks up to 60 °C 35 °C during 24 hours with peaks up to 40 °C

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¹Valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3. Values for other supply systems on request.
²Valid for lines with grounded common neutral termination, overvoltage category II, pollution degree 3. ³For electromagnetic optional extras see additional data in Catalog 101. ⁴Storage temperature: -40 °C to 85 °C (in case of temperature below -5 °C no shock load permissible).

Selection Data	DH11	DHR11	DH12	DHR12
	DK11 ²	DHR11B	DK12 ²	DKR12 ²
	DH11B		DH12B	DHR12B

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Rated Insulation Voltage U_e	IEC 60947-3 ¹ , EN 60947-3 ¹ VDE 0660 part 107 ¹	V	600	600	600	600	
	North America	V	600	600	600	600	
	min. voltage	V	1 ³	1 ³	6	6	
Rated Impulse Withstand Voltage U_{imp}			on request				
Rated Thermal Current I_u/I_{th}	IEC 60947-3, EN 60947-3 VDE 0660 part 107	A	6	6	6	6	
	North America	A	6	6	6	6	
		A					
Rated Operational Current I_e AC-21A Switching of resistive loads, including moderate overloads	IEC 60947-3, EN 60947-3 VDE 0660 part 107						
	North America						
	1 V/6 V	A	6/3	6/3	-/6	-/6	
	12 V/24 V	A	2/1	2/1	6/5	6/5	
	48 V/60 V	A	0,8/0,7	0,8/0,7	4/3,7	4/3,7	
	110 V	A	0,4	0,4	3	3	
	220 V-240 V	A	0,2	0,2	2	2	
	380 V-400 V	A	0,13	0,13	1,3	1,3	
	440 V/500 V	A	0,1/0,09	0,1/0,09	1/0,9	1/0,9	
550 V/600 V	A	0,08/0,05	0,08/0,05	0,8/0,5	0,8/0,5		
Short Circuit Protection							
	Max. fuse size	(glass-tube, quick)	A	6	6	6	6
	Rated short-time withstand current	(1s-current)	A	40	40	65	65
DC Switching Capacity⁵ DC-21B Resistive load T ≤ 1 ms	IEC 60947-3, EN 60947-3 VDE 0660 part 107						
	North America						
	1 V/6 V	A	4/2,5	4/2,5	-/4	-/4	
	12 V/24 V	A	1,5/0,8	1,5/0,8	3/2,2	3/2,2	
	48 V/60 V	A	0,3/0,27	0,3/0,27	1,2/1	1,2/1	
	110 V	A	0,2	0,2	0,6	0,6	
	220 V-240 V	A	0,1	0,1	0,3	0,3	
	380 V-400 V	A	0,06	0,06	0,2	0,2	
	440 V/500 V	A	0,05/0,04	0,05/0,04	0,15/0,12	0,15/0,12	
550 V/600 V	A	0,03/0,02	0,03/0,02	0,1/0,1	0,1/0,1		
Max. Permissible Wire Gage - Use copper wire only							
Single-core or stranded wire	mm ²	2x2,5	-	2x2,5	-		
	AWG	2x12	-	2x12	-		
Flexible wire (sleeving in accordance to DIN 46228) Flexible AWG wires (without sleeve)	mm ²	2x2,5(1,5)	-	2x2,5(1,5)	-		
	AWG	2x14	-	2x14	-		
Connection with insulated ring and fork type terminals	Internal diameter	mm	-	≥3,2	-	≥3,2	
	External diameter	mm	-	≤7,4	-	≤7,4	
	Connection with quick connect terminations	mm	6,3	-	6,3	-	
Tightening torque of screws	Nm	0,8	0,8	0,8	0,8		
	lb-in	7	7	7	7		
Min. Ambient Temperature of Stages⁴		-25 °C (valid only without optional extra)					
Max. Ambient Temperature of Stages^{4,6}	open at 100 % I_u/I_{th} enclosed at 100 % I_{the}	55 °C during 24 hours with peaks up to 60 °C 35 °C during 24 hours with peaks up to 40 °C					

¹Valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3. Values for other supply system on request.

²Valid for lines with grounded common neutral termination, overvoltage category II, pollution degree 3. ³Values for lower voltages on request.

⁴For electromagnetic optional extras see additional data in Catalog 101. ⁵Values for switches with spring return on request.

⁶Storage temperature: -40 °C to 85 °C (in case of temperature below -5 °C no shock load permissible).

Two or Four Hole Panel Mounting

	DH10-DHR12 ³	DK10-DKR12	DH10B-DHR12B
A	48 1.89	48 1.89	64 2.52
B	42 1.65	42 1.65	56 2.20
C	4 .16	4 .16	4 .16
D1	5 .20	5 .20	5 .20
E	8-19 .31-.75	15-19 .59-.75	10-22 .39-.87
E22	11-15 .43-.59	-	-
EF	15-19 .59-.75	-	19-22 .75-.87
E	30 1.17	-	-
F	36(48) 1.42(1.89)	-	48 1.89
M²	5.5 .22	-	5.5 .22

²M, additional length for mounting ER, ERF only
³Dimensions in () for ER, ERF mounting plate only

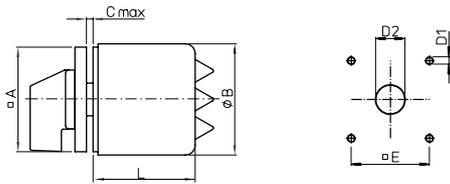
	DH10-DHR12
A	64 2.52
B	42 1.65
C	4 .16
D1	5 .20
EG	10-22 .31-.87
EGF	19-22 .75-.87
E	48 1.89
M	6.7 .26

	KN2	DH10-DHR12	KN1	DH10-DHR12	DH10B-DHR12B
A	48 1.89	48 1.89	64 2.52	64 2.52	64 2.52
B	42 1.65	42 1.65	42 1.65	56 2.20	56 2.20
C	4 .16	4 .16	4 .16	4 .16	4 .16
D1	5 .20	5 .20	5 .20	5 .20	5 .20
D2	8-19 .31-.75	8-19 .31-.75	10-22 .31-.87	10-22 .31-.87	10-22 .31-.87
E	36 1.42	36 1.42	48 1.89	48 1.89	48 1.89
M	5.2 .20	5.2 .20	4.7 .19	12 .47	12 .47

¹see page 45

Four Hole Panel Mounting or Single Hole Mounting and Base Mounting

**EC
ED**



Stages L

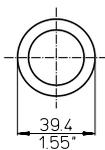
	DH10- DHR12	DH10B- DHR12B
1	104 4.10	64 2.52
2	104 4.10	84 3.31
3	104 4.10	104 4.10
4	-	127 5.00
5	-	139,5 5.49
6	-	164,5 6.48
7	-	177 6.97

	DH10- DHR12	DH10B- DHR12B
A	64 2.52	64 2.52
B	68 2.68	68/88 ¹ 2.68/3.46
C	4 .16	4 .16
C	4 .16	4 .16
D1	5 .20	5 .20
D2	10-22 .39-.87	10-22 .39-.87
D2	19-22 .75-.87	19-22 .75-.87
E	48 1.89	48 1.89

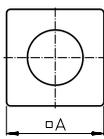
¹ 1-3 ST B = 68 / 4-7 ST B = 88

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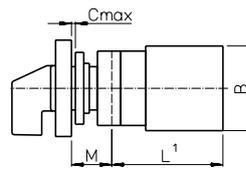
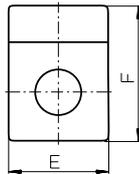
**FT1...
FT3...**



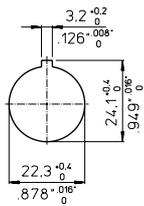
**FH3...
FT2...
FT4...**



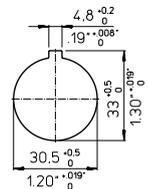
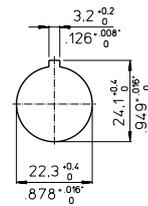
**FH4...
FT6...**



**FH3...
FH4...
FT1...
FT2...
FT6...**

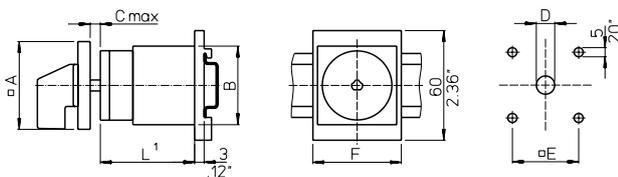


**FT3...
FT4...**



	DH10- DHR12	DK10- DKR12
A/E	48 1.89	48 1.89
FH3...	64 2.52	64 2.52
FH4...	64 2.52	64 2.52
B	42 1.65	42 1.65
C	6 .24	6 .24
F	59 2.32	59 2.32
FH4...	78,5 3.09	78,5 3.09
M	18,2 .72	3,7 .15
FH3...	25,2 .99	3,7 .15
FH4...	25,2 .99	25,2 .99

VE1

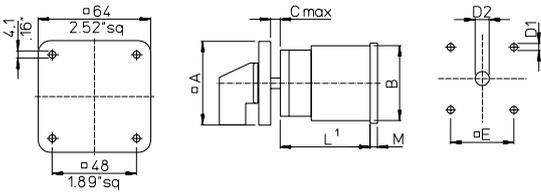


	DH10- DHR12	DH10B- DHR12B
A	48 1.89	64 2.52
B	42 1.65	56 2.20
C	10,5 .41	13,5 .53
D	8-15 .31-.59	10-15 .39-.59
E	36 1.42	48 1.89
F	48 1.89	70 2.76

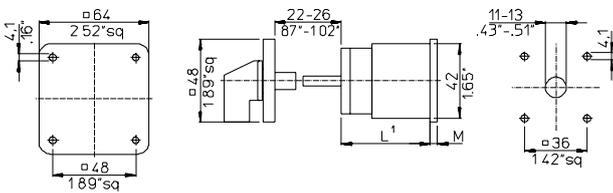
¹ see page 45

Base Mounting

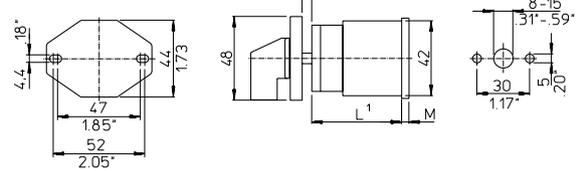
**VE
VE-V**



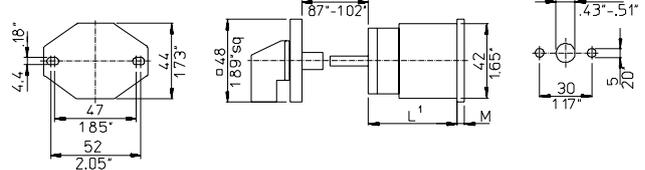
**VF
VF-V**



**VE22
VE22V**

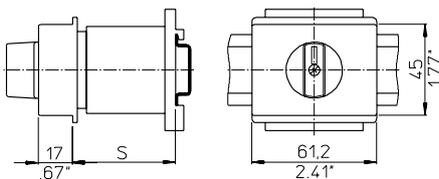


**VF22
VF22V**

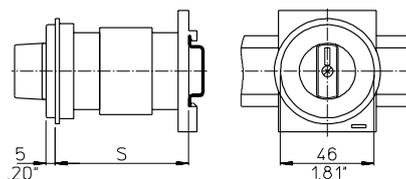


	DH10- DHR12	DH10B- DHR12B		DH10- DHR12	DH10B- DHR12B
A	48 1.89	64 2.52	E	36 1.42	48 1.89
B	42 1.65	56 2.20	VE M	3,2 .13	2,5 .10
C	10,5 .41	13,5 .53	VE22 M	1,9 .07	-
D1	5 .20	5 .20	VF M	3,2 .13	-
D2	8-19 .31-.75	10-22 .39-.87	VF22 M	1,9 .07	-

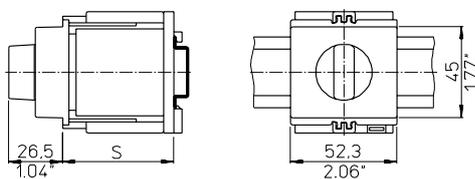
VE2



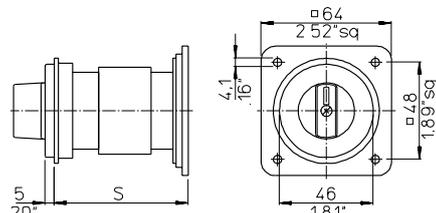
VE3



VE21



VE4



	VE2 DH10- DHR12 Max. no. of stages	VE3 DH10- DHR12 Max. no. of stages	VE4 DH10- DHR12 Max. no. of stages	S_{min.}	VE21 DH10- DHR12 No. of stages
S = 46 1.80	1	-	-	44 1.73	1
S = 50 1.97	-	1	1	54 2.13	2
S = 61 2.40	2	1	1	72 2.83	3
S = 67 2.64	-	2	2		
S = 69 2.70	-	2	2		

¹see page 45

Dimensions mm
inch

Wall Mounting, Escutcheon Plates and Additional Length

**UE1
UE2
UE3**

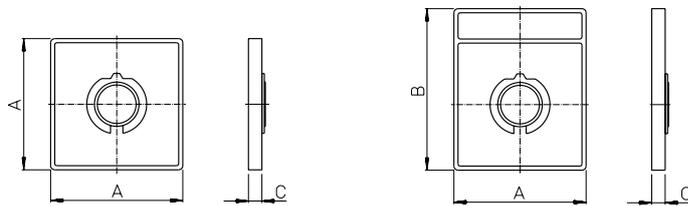
Lamp

**DH10-
DHR12**

B 42
1.65

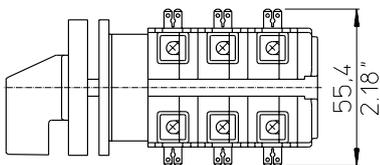
$L_{UE} = L - 6,3$

Escutcheon plates for mounting E, EF, ER, ERF, EG, EGF, KN1, KD1, KN2, EC, ED, VE, VE1, VF

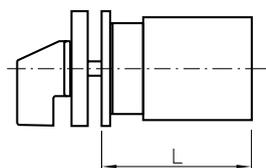


Size	A	B	C
S0	48 1.89	59 2.32	6,7 .26
S1	64 2.52	78 3.07	7,4 .29

Quick connects for switches DH and DK (page 6)



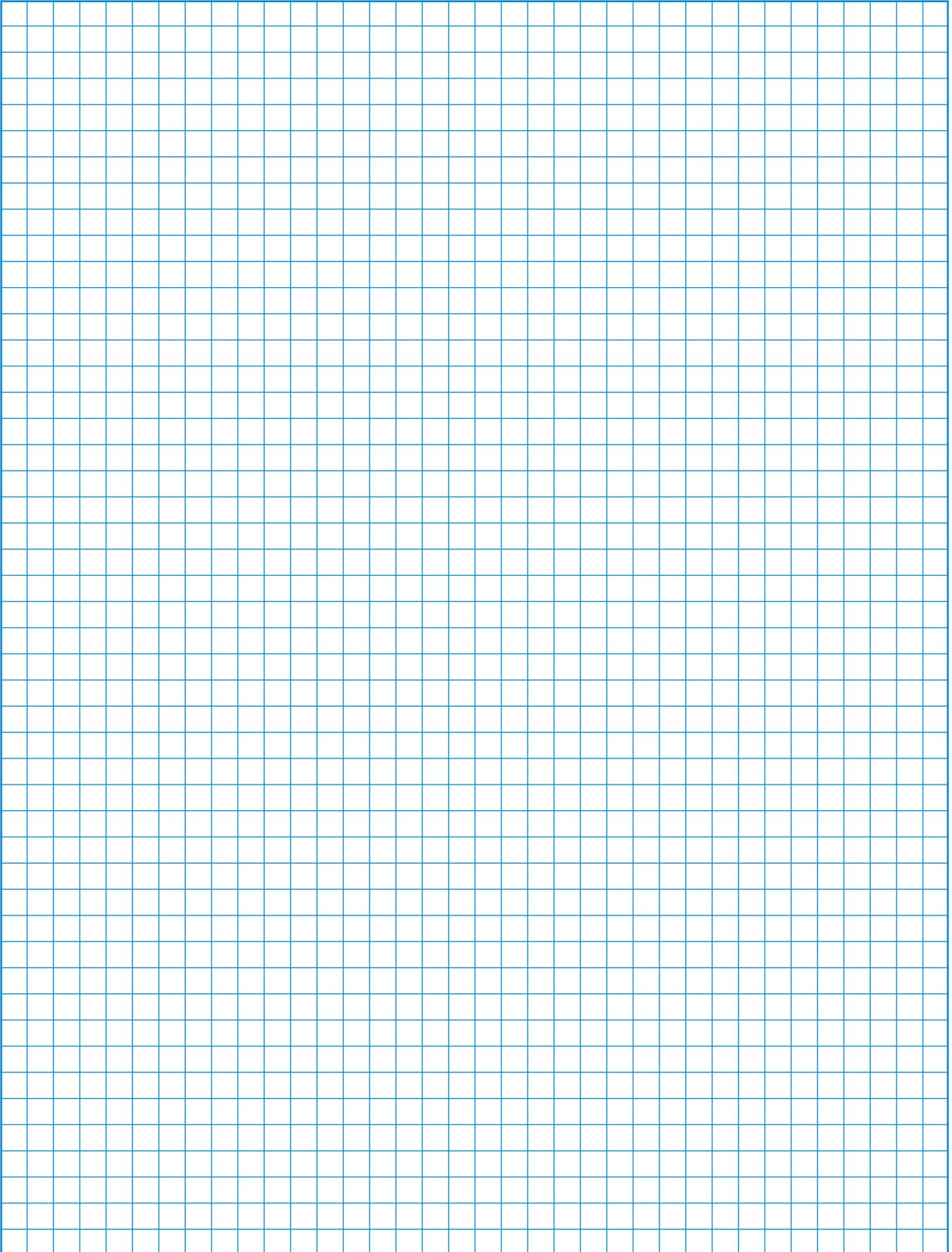
Length L



	DH10 DH11 DH12	DHR10 DHR11 DHR12	DK10 DK11 DK12	DKR12	DH10B DH11B DH12B	DHR11B DHR12B
1	43,5 1,71	43,5 1,71	61 2,4	61 2,4	48,9 1,93	48,9 1,93
2	61 2,4	61 2,4	78,5 3,09	78,5 3,09	66,4 2,61	66,4 2,61
3	78,5 3,09	78,5 3,09	96 3,78	96 3,78	83,9 3,30	83,9 3,30
4	96 3,78	96 3,78	113,5 4,47	113,5 4,47	101,4 3,99	101,4 3,99
5	113,5 4,47	113,5 4,47	131 5,16	131 5,16	118,9 4,68	118,9 4,68
6	131 5,16	131 5,16	148,5 5,85	148,5 5,85	136,4 5,37	136,4 5,37
7	148,5 5,85	148,5 5,85	166 6,54	166 6,54	153,9 6,06	153,9 6,06
8	166 6,54	166 6,54	183,5 7,22	183,5 7,22	171,4 6,75	171,4 6,75
9	183,5 7,22	183,5 7,22	201 7,91	201 7,91	188,9 7,44	188,9 7,44
10	201 7,91	201 7,91	218,5 8,60	218,5 8,60	206,4 8,13	206,4 8,13
11	218,5 8,6	218,5 8,6	236 9,29	236 9,29	223,9 8,81	223,9 8,81
12	236 9,29	236 9,29	253,5 9,98	253,5 9,98	241,4 9,50	241,4 9,50

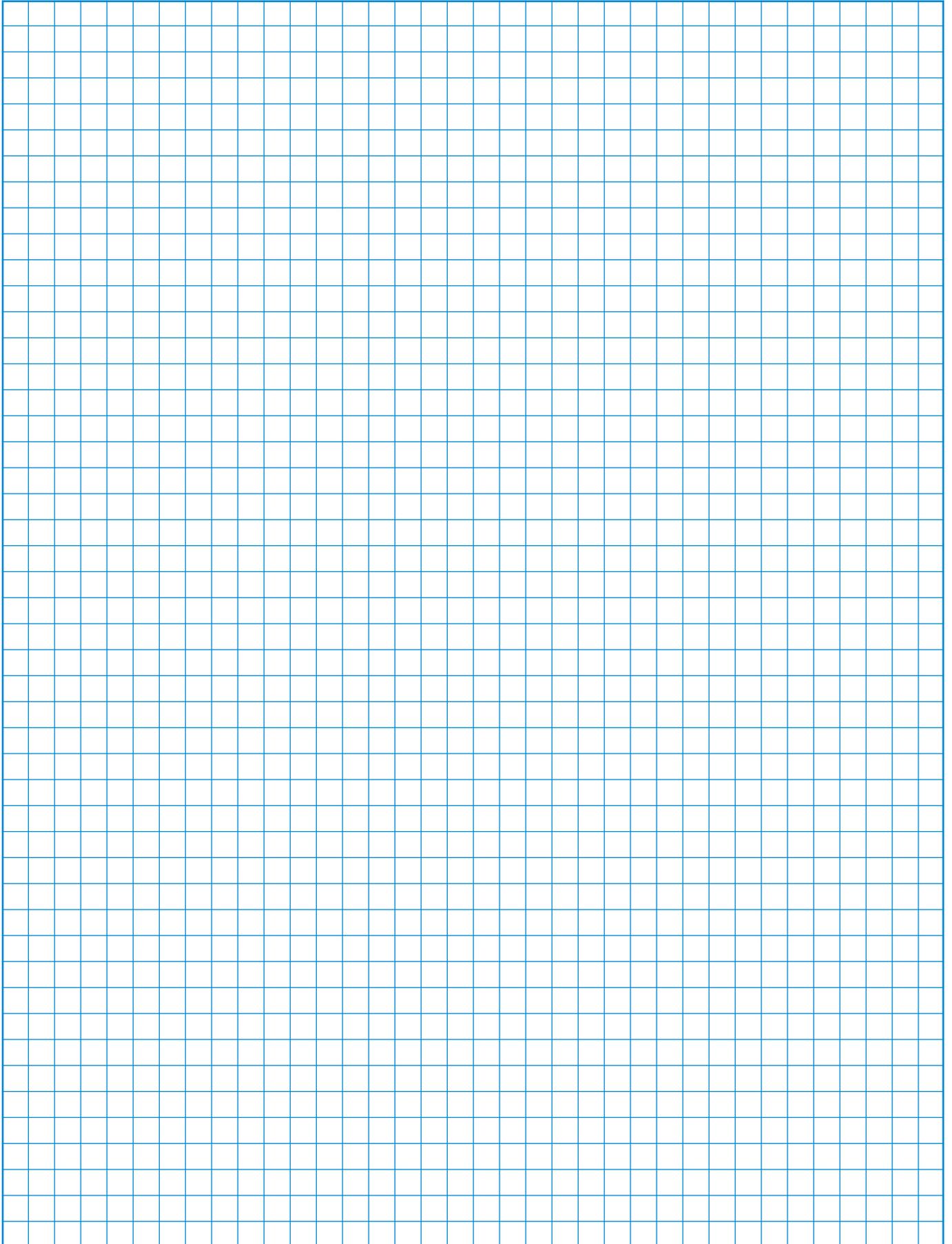
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Notes:



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Notes:



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The Range of “Blue Line” Switchgear

Technical literature covering the following products is available on request.

	Catalog Number
Main Switches and Main Switches with Emergency Function 16 A-315 A Maintenance Switches 20 A-315 A Switch Disconnectors 20 A-315 A According to IEC 60947-3, EN 60947-3, VDE 0660 part 107, IEC 60204, EN 60204 and VDE 0113	500
C, CA and CAD Switches 10 A-315 A and L Switches 350 A-2400 A C, CA and CAD switches are designed for universal application. They are recommended for instrument, isolator, double-throw and motor control. L switches are designed for load and off-load applications. They are used to switch resistive or low inductive loads.	100
Optional Extras and Enclosures The complete product line, a large number of optional extras is available, including door interlocks, push-pull devices, cylinder and padlock attachments, control and indicator devices, AC motor drives, as well as enclosures, both insulated and metal.	101
A and AD Switches 6 A-25 A A and AD switches have 4 contacts in each switching stage. These switches provide an extensive range of switch functions and require a minimum mounting depth. Up to 24 switching positions are possible, with availability of 48 contacts per 12 stage switch column.	110
CG, CH and CHR Switches 10 A-25 A Ultra compact CG, CH and CHR switches are ideally suited for control and instrumentation applications. Switch terminals are “finger-proof” and conveniently accessible for wiring and are delivered open. All CG4 switches offer specially designed gold plated contacts or H-bridges with “cross-wire” contact systems, which facilitates their use in electronic circuitry and chemically aggressive environments.	120
DH, DHR, DK and DKR Switches 6 A-16 A DH, DHR, DK and DKR switches incorporate unique corrosion resistant contacts that permit operation on system voltage as low as 1 V. They have fully enclosed and protected contacts which can be operated either by rotary and/or lateral handle movement. D switches are used in calibration and semiconductor circuits. They are also used for relay and contactor control.	130
X Switches 200 A-630 A X switches can be applied for load, tap and gang switching duties. They incorporate 6 contacts in each switching stage. Their compact design provides a minimum length dimension for mounting purposes.	140
KG Switches 20 A-315 A and KH and KHR Switches 16 A-80 A KG, KH and KHR switches are excellent circuit interruptors. They have high through fault and fault making capacities and are especially designed for use as isolators and safety switches for machine tools, distribution panels and switchboards. KG ON/OFF switches offer unusually high dimensioned air and creepage distances between terminals which are designed for time saving “straight-line” wiring. ON/OFF switches are available with up to 8 poles and double-throw switches are available with up to 4 poles.	150
Push Buttons and Pilot Lights, 22,5 mm Ø A complete range of state-of-the-art push buttons and pilot lights represent an ideal combination of functional security and economical efficiency in a modular design.	302

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